Amendments to the Specification

Please replace the paragraph beginning on page 5, line 23 through page 6, line 2, with the following rewritten paragraph:

In the normothermic perfusion mode, gross organ perfusion pressure is preferably provided by a pneumatically pressurized medical fluid reservoir controlled in response to a sensor disposed in an end of tubing placed in the organ, which may be used in combination with a stepping motor/cam valve or pinch valve which provides for perfusion pressure fine tuning, prevents overpressurization and/or provides emergency flow cut-off. Substantially eliminating overpressurization prevents and/or reduces damage to the vascular endothelial lining and to the organ tissue in general. Viability of the organ may be monitored, preferably automatically, in the normothermic perfusion mode, preferably by monitoring organ resistance (pressure/flow) and/or pH, pO_2, pCO_2, LDH, T/GST, Tprotein and~~/or~~ fluorescent tagged copolymer levels in the medical fluid that has been perfused through the organ and collected.

Please replace the paragraph beginning on page 6, lines 3-20, with the following rewritten paragraph:

Normothermic perfusion may be preceded by and/or followed by hypothermic perfusion. In the hypothermic mode, the organ is perfused with a medical fluid containing substantially no oxygen, preferably a simple crystalloid solution preferably augmented with antioxidants, intermittently or at a slow continuous flow rate. Hypothermic perfusion also can be performed in vivo as well as in vitro prior to removal of the organ from the donor. Hypothermic perfusion reduces the organ's metabolic rate allowing the organ to be preserved for extended periods of time. The medical fluid is preferably fed into the organ by pressure from an intermediary tank which has a low pressure head so overpressurization of the organ is avoided. Alternatively, in embodiments, gravity can be used to feed the medical fluid into the

organ from the intermediary tank, if appropriate. Substantially eliminating overpressurization prevents or reduces damage to the vascular endothelial lining of the organ and to the organ tissue in general, in particular at hypothermic temperatures when the organ has less ability to protect itself by vascular constriction. Viability of the organ may also be monitored, preferably automatically, during the recovery process, preferably by monitoring organ resistance (pressure/flow) and/or pH, pO_2, pCO_2, LDH, T/GST, Tprotein and~~/or~~ fluorescent tagged copolymer levels in the medical fluid that has been perfused through the organ and collected.

Please replace the paragraph beginning on page 15, line 24 through page 16, line 4, with the following rewritten paragraph:

The oxygenator 110 is preferably a two stage oxygenator which preferably includes a hydrophilically coated low porosity oxygen permeable membrane. A portion of the medical fluid is diverted around the oxygenator along tubing 111 in which is disposed a viability sensor V1, which senses fluid characteristics, such as organ resistance (pressure/flow), pH, pO_2, pCO_2, LDH, T/GST, Tprotein, and~~/or~~ fluorescent tagged copolymer indicative of an organ's viability. The viability sensor V1 is in communication with the microprocessor 150 and allows the organ's viability to be assessed either automatically or manually. One of two gases, preferably 100% oxygen and 95/5% oxygen/carbon dioxide, is placed on the opposite side of the membrane depending on the pH level of the diverted medical fluid. Alternatively, another pump (not shown) may be provided which pumps effluent medical fluid out of the organ chamber 40 and through a viability sensor before returning it to the bath, or the viability sensor can be placed on tubing 81 utilizing pump 80.

Please replace the paragraph beginning on page 22, lines 27-29, with the following rewritten paragraph:

The normothermic perfusion, with or without prior hypothermic flushing, may also be performed on an organ that has already been subjected to hypothermic temperatures under static or perfusion conditions, as well as on normothermic organs. A medical fluid under normothermic conditions may also include an oxygen carrier, a free radical scavenger, a pituitary growth factor extract and~~/or~~ cell culture media.

Please replace the paragraph beginning on page 29, lines 4-14, with the following rewritten paragraph:

Subsequently, a portion of the medical fluid then enters the oxygenator 110 (for example, a JOSTRA™ oxygenator) and a portion is diverted therearound passing via tubing 111 though the pH, pO_2, pCO_2, LDH, T/GST, Tprotein and~~/or~~ fluorescent tagged copolymer sensor V1. At this point two gases, preferably 100% oxygen and 95/5% oxygen/carbon dioxide, are respectively placed on the opposite sides of the membrane depending on the pH level of the diverted medical fluid. The gases are applied at a pressure of up to 200 mm Hg, preferably 50 to 100 mm Hg, preferably through a micrometer gas valve GV_3. The cross-linked hemoglobin-based bicarbonate medical fluid may be formulated to require a pCO_2 of approximately 40 mm Hg to be at the mid point (7.35) of a preferred pH range of 7.25-7.45.

Please replace the paragraph beginning on page 30, lines 31 through page 31, line 2, with the following rewritten paragraph:

Further, in the hypothermic mode, because the organ 60 has less of a demand for nutrients, the medical fluid may be provided to the organ 60 intermittently (e.g., every two hours at a flow rate of up to approximately 100 ml/min.), or at a slow continuous flow rate (e.g., up to approximately 100 ml/min.) over a long period of time. Intermittent perfusion can be implemented in the single pass mode or recirculation mode. The pump 80, filter unit 82

and tube 81 may be used to filter the organ bath along with use of the pH, pO_2, pCO_2, LDH, T/GST, Tprotein, and~~/or~~ fluorescent tagged copolyer sensor; however, because the organ is unable to utilize oxygen at hypothermic temperatures, the oxygenator is not used. If desired and/or necessary, adequate oxygen can be obtained from filtered room air or other suitable source.